

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Withdrawn): An encoding method for encoding an original image, comprising:

a decomposition step of decomposing an input original image into M (M is an integer and  $M > 2$ ) uniform subbands; and

an encoding step of encoding signals, by using an embedded type entropy encoding method, obtained by decomposing the original image into uniform subbands.

Claim 2 (Withdrawn): The encoding method as claimed in claim 1, the coding method further comprising a quantization step of quantizing the signals obtained by the decomposition step, wherein signals obtained by the quantization step are encoded in the encoding step.

Claim 3 (Withdrawn): The encoding method as claimed in claim 1, wherein a uniform decomposing filter bank is used in the decomposition step, and EBCOT used in the still image international standard JPEG 2000 is used in the encoding step.

Claim 4 (Withdrawn): The encoding method as claimed in claim 1, wherein coded data obtained in the encoding step include information of resolution levels defined in ascending order of subband in the decomposed subbands.

Claim 5 (Withdrawn): The encoding method as claimed in claim 4, wherein the coded data include information of resolution levels for a vertical direction and a horizontal direction, respectively, in an image.

Claim 6 (Withdrawn): An encoding method of encoding an original image, the encoding method comprising:

a transformation step of transforming an input original image into a plurality of coefficients by orthogonal transform; and

an encoding step of encoding the coefficients by using an embedded type entropy encoding method.

Claim 7 (Withdrawn): The encoding method as claimed in claim 6, wherein coded data obtained in the encoding step include information of resolution levels defined in ascending order of frequency in frequency components corresponding to the coefficients.

Claim 8 (Currently Amended): A decoding method of decoding, using a decoding apparatus having a processor, coded data with a resolution of N/M times (M and N are integers, and  $1 \leq N < M$  and  $M > 2$ ) that of an original image, the decoding method comprising:

a decoding step of receiving the coded data that are encoded by decomposing the original image into M uniform subbands using an analysis filter bank that includes M filters of the same bandwidth and M 1/M-times downsampling units, extracting N signals from decomposed signals from a low frequency side, and decoding, using the decoding apparatus, the N signals by using an entropy decoding method; and

a bandwidth synthesizing step of synthesizing the N signals, that are decoded to obtain an image of the resolution of N/M times that of the original image, by using a synthesizing filter bank that includes N N-times upsampling units and N filters of the same bandwidth.

Claim 9 (Original): The decoding method as claimed in claim 8, the decoding method further comprising an inverse quantization step of inverse-quantizing the signals obtained by the decoding step, wherein signals that are obtained by the inverse quantization step are synthesized in the bandwidth synthesizing step.

Claim 10 (Previously Presented): The decoding method as claimed in claim 8, wherein EBCOT used in still image international standard JPEG 2000 is used as the entropy decoding method in the decoding step, and a uniform decomposing filter bank is used in the bandwidth synthesizing step.

Claim 11 (Previously Presented): The decoding method as claimed in claim 8, the decoding method further comprising a calculation step of obtaining a resolution of the original image and a predetermined resolution, and calculating a value N suitable for the predetermined resolution by using the resolution of the original image and decomposition number M.

Claim 12 (Currently Amended): A decoding method of decoding, using a decoding apparatus having a processor, coded data with a resolution of N/M times (M and N are integers, and  $1 \leq N < M$  and  $M > 2$ ) that of an original image, the decoding method comprising:  
a decoding step of receiving the coded data that are encoded by decomposing the original image into M coefficients of frequency components using M x M order DCT, extracting N signals from decomposed signals from a low frequency component side, and decoding, using the decoding apparatus, the N signals by using an entropy decoding method; and

a bandwidth synthesizing step of synthesizing the N signals, that are decoded to obtain an image of the resolution of  $N/M$  times that of the original image, by using  $N \times N$  order IDCT.

Claim 13 (Withdrawn): An encoding apparatus for encoding an original image, the encoding apparatus comprising:

a decomposition part decomposing an input original image into M (M is an integer and  $M > 2$ ) uniform subbands; and

an encoding part encoding signals, by using an embedded type entropy encoding method, obtained by decomposing the original image into uniform subbands.

Claim 14 (Withdrawn): The encoding apparatus as claimed in claim 13, the encoding apparatus further comprising a quantization part quantizing the signals obtained by the decomposition part, wherein signals obtained by the quantization part are encoded in the encoding part.

Claim 15 (Withdrawn): The encoding apparatus as claimed in claim 13, wherein a uniform decomposing filter bank is used in the decomposition part, and EBCOT used in the still image international standard JPEG 2000 is used in the encoding part.

Claim 16 (Withdrawn): The encoding apparatus as claimed in claim 13, wherein coded data obtained in the encoding part include information of resolution levels defined in ascending order of subband in the decomposed subbands.

Claim 17 (Withdrawn): The encoding apparatus as claimed in claim 16, wherein the coded data include information of resolution levels for a vertical direction and a horizontal direction, respectively, in an image.

Claim 18 (Withdrawn): An encoding apparatus for encoding an original image, the encoding apparatus comprising:

a transformation part transforming an input original image into a plurality of coefficients by orthogonal transform; and

an encoding part encoding the coefficients by using an embedded type entropy encoding method.

Claim 19 (Withdrawn): The encoding apparatus as claimed in claim 18, wherein coded data obtained in the encoding part include information of resolution levels defined in ascending order of frequency in frequency components corresponding to the coefficients.

Claim 20 (Currently Amended): A decoding apparatus for decoding coded data with a resolution of  $N/M$  times ( $M$  and  $N$  are integers, and  $1 \leq N < M$  and  $M > 2$ ) that of an original image, the decoding apparatus comprising:

a decoding part receiving the coded data that are encoded by decomposing the original image into  $M$  uniform subbands using an analysis filter bank that includes  $M$  filters of the same bandwidth and  $M$   $1/M$ -times downsampling units, extracting  $N$  signals from decomposed signals from a low frequency side, and decoding the  $N$  signals by using an entropy decoding method; and

a bandwidth synthesizing part synthesizing the N signals, that are decoded to obtain an image of the resolution of  $N/M$  times that of the original image, by using a synthesizing filter bank that includes N N-times upsampling units and N filters of the same bandwidth.

Claim 21 (Original): The decoding apparatus as claimed in claim 20, the decoding apparatus further comprising an inverse quantization part inverse-quantizing the signals obtained by the decoding part, wherein signals that are obtained by the inverse quantization part are synthesized in the bandwidth synthesizing part.

Claim 22 (Previously Presented): The decoding apparatus as claimed in claim 20, wherein EBCOT used in still image international standard JPEG 2000 is used as the entropy decoding method in the decoding part, and a uniform decomposing filter bank is used in the bandwidth synthesizing part.

Claim 23 (Previously Presented): The decoding apparatus as claimed in claim 20, the decoding apparatus further comprising a calculation part obtaining a resolution of the original image and a predetermined resolution, and calculating a value N suitable for the predetermined resolution by using the resolution of the original image and decomposition number M.

Claim 24 (Currently Amended): A decoding apparatus of decoding coded data with a resolution of  $N/M$  times ( $M$  and  $N$  are integers, and  $1 \leq N < M$  and  $M > 2$ ) that of an original image, the decoding apparatus comprising:

a decoding part receiving the coded data that are encoded by decomposing the original image into M coefficients of frequency components using  $M \times M$  order DCT,

extracting N signals from decomposed signals from a low frequency component side, and decoding the N signals by using an entropy decoding method; and a bandwidth synthesizing part synthesizing the N signals, that are decoded to obtain an image of the resolution of  $N/M$  times that of the original image, by using  $N \times N$  order IDCT.

Claims 25-30 (Cancelled).

Claim 31 (Withdrawn): A computer readable recording medium that records a program for causing a computer to perform encoding processes for an original image, wherein the program causes the computer to perform:

a decomposition step of decomposing an input original image into M (M is an integer and  $M > 2$ ) uniform subbands; and an encoding step of encoding signals, by using an embedded type entropy encoding method, obtained by decomposing the original image into uniform subbands.

Claim 32 (Withdrawn): The computer readable recording medium as claimed in claim 31, wherein the program further causes the computer to perform a quantization step of quantizing the signals obtained by the decomposing step, wherein signals obtained by the quantization step are encoded in the encoding step.

Claim 33 (Withdrawn): A computer readable recording medium that records a program for causing a computer to perform encoding processes for an original image, wherein the program causes the computer to perform:

a transformation step of transforming an input original image into a plurality of coefficients by orthogonal transform; and  
an encoding step of encoding the coefficients by using an embedded type entropy encoding method.

Claim 34 (Currently Amended): A computer readable recording medium that records a program for causing a computer to perform decoding processes for decoding coded data with a resolution of  $N/M$  times ( $M$  and  $N$  are integers, and  $1 \leq N < M$  and  $M > 2$ ) that of an original image, wherein the program causes the computer to perform:

a decoding step of receiving the coded data that are encoded by decomposing the original image into  $M$  uniform subbands using an analysis filter bank that includes  $M$  filters of the same bandwidth and  $M$   $1/M$ -times downsampling units, extracting  $N$  signals from decomposed signals from a low frequency side, and decoding the  $N$  signals by using an entropy decoding method; and

a bandwidth synthesizing step of synthesizing the  $N$  signals, that are decoded to obtain an image of the resolution of  $N/M$  times that of the original image, by using a synthesizing filter bank that includes  $N$   $N$ -times upsampling units and  $N$  filters of the same bandwidth.

Claim 35 (Original): The computer readable recording medium as claimed in claim 34, the program further causing the computer to perform an inverse quantization step of inverse-quantizing the signals obtained by the decoding step, wherein signals that are obtained by the inverse quantization step are synthesized in the bandwidth synthesizing step.

Claim 36 (Currently Amended): A computer readable recording medium that records a program for causing a computer to perform decoding processes for decoding coded data with a resolution of  $N/M$  times ( $M$  and  $N$  are integers, and  $1 \leq N < M$  and  $M > 2$ ) that of an original image, wherein the program causes the computer to perform:

a decoding step of receiving the coded data that are encoded by decomposing the original image into  $M$  coefficients of frequency components using  $M \times M$  order DCT, extracting  $N$  signals from decomposed signals from a low frequency component side, and decoding the  $N$  signals by using an entropy decoding method; and

a bandwidth synthesizing step of synthesizing the  $N$  signals, that are decoded to obtain an image of the resolution of  $N/M$  times that of the original image, by using  $N \times N$  order IDCT.